

Digital tax administration: transforming the workforce to deliver

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Abstract

This article provides the global context for digital tax administration and the radical change to the administration workforce. It examines the knowledge, skills, and capabilities to implement digital taxation and identifies the importance of a holistic workforce strategy. The article examines the elements of a data-driven human resource management strategy required to shape and develop an appropriate workforce. It shows that this ranges from revision of classification and role definition to comprehensive training. The article identifies the characteristics of an effective training system and the range of appropriate delivery methods to support strategy implementation. The article demonstrates that, as all tax administrations transform, the effectiveness of that transformation to digital delivery depends on developing a workforce with the right skillset. It shows that despite the competition for skills, a carefully planned and implemented strategy can build depth of capability appropriate to the jurisdiction and its state of development.

Keywords: tax administration, digital, human resources

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1. INTRODUCTION

1.1 Digital tax administration and the workforce needed to deliver it

The speed of digital adoption and transformation across every aspect of society during 2020 raises significant challenges for governments in the decade to 2030. In recent decades there was progression to e-government, which can be broadly defined as an adoption of new technologies in every aspect of governmental activity. Tax administration has often been at the forefront of change, simply because technology has supported improvements in efficiency, productivity, effectiveness, simplicity and fairness in a highly cost-constrained environment. This is illustrated by a 2004 Organisation for Economic Co-operation and Development (OECD) Forum on Tax Administration guidance note already focusing on *Compliance risk management: Progress with the development of internet search tools for tax administration* (OECD, 2004).

The use of suites of once stand-alone, but increasingly interconnected technology tools, provided for example, through search tools, email and desktop systems, websites, and systems for financial and people management was referred to as e-government and delivered what was often called e-taxation. Recently e-government has moved to a more advanced form of delivery, using platforms, often cloud-based or mobile, which allow integration, data-sharing and the use of intelligent technologies, that was inconceivable a few years ago. This is often called digital government (Mergel, Edelmann & Haug, 2019). Tax administrations are, again, often among the first areas of government targeted to adopt these new technologies. In a digital world, it is critical that the tax administration keeps pace with taxpayers.

The Group of Twenty (G20) international forum of finance ministers and central bank governors met virtually during the COVID-19 pandemic in 2020. Their focus was on creating global economic stability and recovery. However, their communiqués consistently reinforced the importance of ‘cooperation for a globally fair, sustainable, and modern international tax system addressing the tax challenges arising from the digitalization of the economy’ (G20 Finance Ministers and Central Bank Governors, 2020).

This article is designed to raise the critical importance to effective tax administration of human capital management. Whereas concern over whether the tax administration can do what it is supposed to was once the province of developing economies, it is now a critical risk factor for all tax authorities. The article demonstrates that there is scant research or literature on the characteristics of tax personnel required to operate in a digital world. Yet it is fundamental to effective taxation that tax personnel keep pace with digital adoption by the most innovative taxpayers (and tax evaders).

It could be argued that tax authorities should simply hire the right people and build a new workforce over time. The article shows that this is naïve, as this view recognises neither that all tax employees need to upgrade their digital skills, nor that the talent pools simply do not exist to hire enough new staff. It is a challenge for developed tax administrations that developing countries have almost always faced.

This article demonstrates that the basic skillset of every employee needs constant upgrading, and for the delivery of digital tax administration, specialist tax technical skills are insufficient without advanced digital skills. Clarity on the scope and extent of

the integration of digital skillsets into every aspect of tax administration is arguably of a similar level of importance to tax authorities as understanding compliance costs. Without effective integration, and the reskilling and upskilling of every tax administration workforce, tax administration and revenue collection is at risk.

While transformation is comprehensive in nature (Mergel et al., 2019), the focus in this article is identifying the capabilities required in the tax administration to take advantage of technological change. The study is necessarily based in a whole of government context. It draws on relevant broader literature and practical developments, working towards solutions and recommendations focused on the administration of taxation.

1.2 The research approach

It is important to note that the discussion and analysis are qualitative. The literature on the digital changes occurring is prolific and largely reactive. While reports and articles include elements of both quantitative and qualitative methodology, many lack the academic rigour and methodology required to fully support the validity and reliability of the conclusions drawn and recommendations made (Neuman, 2013, p. 125). However, the validity of this article is found in the drawing together of multiple pieces of information from a wide range of sources across disciplines such that the patterns and conclusions become obvious (McKerchar, 2010, p. 172). Additionally, the article draws on, interprets and applies reports from international organisations and governments, which in most cases have emerged following rigorous review and broad consensus.

1.3 The work of the OECD in providing a framework for change

Digital Government is now a central focus of government (Mergel et al, 2019). The OECD has provided a powerful research and coordination capability that has influenced the direction globally of government policy on digitalisation. It has a long history of successful coordination and broad consultation in developing policy recommendations in this sphere, since its early work on the development of government responses to the growth of the web and electronic commerce (Bentley, 2007, p. 23; Bertin & Leisering, 2016).

This article focuses on OECD member countries and those non-member countries broadly adhering to OECD Council endorsed instruments. Together these countries provide the strategies likely to be adopted as best practice globally, to transform public sector workforce capability to deliver digital government. As a case study of practical application, the article focuses on Australia, where there is a clear agenda for digital transformation in the tax administration (Commissioner of Taxation, Australia, 2019), combined with a holistic review of the Australian Public Service, with implementation from 2020 (Department of the Prime Minister and Cabinet, Australia, 2019).

In 2014, the OECD Council made a wide-ranging recommendation on Digital Government Strategies (OECD, 2014), endorsed by the 36 OECD members and supported by 10 diverse and influential non-members. While the detail of the recommendation has informed the response of governments both within and outside the OECD, the basis for the recommendation provides a high-level statement of the strategic purpose of Digital Government. It is useful in understanding high-level government strategies, their application to government departments responsible for tax administration and the consequent purpose of developing human resource capability in tax administration.

The Council bases its recommendation on a comprehensive body of work over time by numerous bodies that have engaged with both members and non-members of the OECD (OECD, 2014, p. 4). The Council recommendation can be summarised as follows.

Investment in digital government is a shared responsibility of all levels of government, for it opens, innovates and modernises public sectors, making them more efficient and effective. The public spending to invest is significant and so a common vision is needed across government to avoid duplication and to ensure that the digital architecture of government is effectively joined up. Done well, it will contribute to sustainable development and growth of all levels of government, with a commensurate increase in citizen trust in their governing institutions and a sense of societal well-being.

1.4 Public value underpins change and the continued effectiveness of tax administration

To deliver a digital approach to government, the OECD recommendation assumes development of a digital government ecosystem inclusive of all stakeholders to demonstrate how digital government creates public value. It explicitly defines public value as follows (OECD, 2014, p. 5):

Public value refers to various benefits for society that may vary according to the perspective or the actors, including the following: 1) goods or services that satisfy the desires of citizens and clients; 2) production choices that meet citizen expectations of justice, fairness, efficiency and effectiveness; 3) properly ordered and productive public institutions that reflect citizens' desires and preferences; 4) fairness and efficiency of distribution; 5) legitimate use of resource to accomplish public purposes; and 6) innovation and adaptability to changing preferences and demands.

The definition reflects a citizen-centric approach, and the basis of democratic government underpinned by legislative and rights frameworks (Bentley, 2016; OECD, 2017a) and public trust (Janssen et al., 2018; Yang & Anguelov, 2013). Gangl, Hofmann and Kirchler (2015), in their work on tax compliance and the effective operation of government, emphasise the importance of building trust between citizen and government. Kirchler, Hoelzl and Wahl (2008) demonstrate how such trust can be lost. Getting digital change wrong, whether in terms of the technology or the capabilities of the people who operate it, typically drives loss of trust. This is particularly important for tax administration as it adopts new technologies.

That the developing skillsets required are value-driven is recognised more explicitly in the specific recommendations (OECD 2019a, pp. 5-7). While the focus is on digital transformation to deliver public value, there is emphasis on: inclusivity and addressing 'digital divides', rights, the importance of engagement, collaboration, effective project and risk management, and working across boundaries and borders. Each of these is fundamental to the delivery of effective tax administration for the 21st century.

The deep digital, analytic and specialist technical capabilities required by a digital government are clearly identified, but any analysis of workforce capability needs to be grounded in the broader human dimensions, which give effect to digital transformation in a way that reinforces and builds trust and public value (Scott, DeLone & Golden, 2016). The approach is articulated in the OECD conceptualisation of the three focus areas for a data-driven public sector as governance, public value and trust (OECD 2014). All three drive successful tax administration.

Surprisingly, given the emphasis by the OECD on digital government across all facets of its work, the 2019 Recommendation of the Council on Public Service Leadership and Capability (OECD 2019b) makes no reference to digital government or digital transformation, which will fundamentally change the work of government. However, it does recommend the two elements particularly critical to the implementation of digital government and an effective and trusted public service: building a values-driven culture encouraging difference, diversity and inclusion; and identifying, attracting and developing a workforce with appropriate knowledge, skills, competencies and capabilities.

This article draws on the significant literature that identifies the coming disruption to the future workforce. However, it focuses specifically on how this is likely to impact on tax administration. Section 2 identifies how the significant advances in digital government are likely to shape future public service and tax administration capability. Section 3 identifies the response of tax administrations at a high level, with particular reference to the work of the OECD in guiding the direction of tax administrations and their interaction globally. Section 4 identifies, based on the evidence available, the changing capabilities likely to be needed for the future tax administration workforce. Section 5 draws on the literature, the context and likely direction of digital government and sets out the principles applicable to the design of a capability strategy for tax administration, identifying significant immediate challenges and potential solutions. Section 6 concludes with recommendations.

2. ADVANCES IN DIGITAL GOVERNMENT: TRANSFORMING CAPABILITY

2.1 How will government and tax administration transform?

The OECD Going Digital Project aims to help governments shape digital transformation for the whole of society so that no one is left behind. Its 2019 Report draws broadly on existing literature and expert inter-disciplinary panels to provide a framework for members and non-members to advance their work (OECD, 2019c).

In considering how to increase effective use of digital capabilities, the Going Digital Project identified a comprehensive framework, of which four issues can be drawn out as critical to digital transformation of tax administration (OECD, 2019c, pp. 51ff).

First, tax administration needs to shift from somewhat piecemeal e-government to a holistic, integrated and user-driven digital approach that goes across government. Second, the integration needs to be coherent in its use of digital technologies and data across government, which is critical for taxation both domestically and internationally, with the relevant investment in resources and infrastructure to deliver effective transformation. The third issue is to ensure that the tax workforce has both the specialist technical tax skills and the digital skills needed to thrive in a digital-rich environment and that there is comprehensive training, as tax administrations face greater challenges than the private sector in competing for scarce talent. Fourthly, as identified above, it is particularly important in tax administration to carefully manage digital risks; to engage, empower and communicate with stakeholders to raise trust in digital online environments generally, and particularly in digital government and tax administration.

The Going Digital Report identified seven components of the current ecosystem of interdependent digital technologies, which ‘will evolve to drive future economic and societal changes’ (OECD, 2019c, p. 18), and this will, of course, encompass digital

government and digital tax administration in different ways. The seven components are: computing power; internet of things; 5G networks; cloud computing; big data; artificial intelligence; and blockchain. Most are obvious and fundamental to operating a tax system. Less obvious may be the internet of things, or technology integrated into everyday items, which will revolutionise intelligent automatic interaction with the tax administration. Examples include: accurate and real-time measurement of depreciation through sensors embedded in assets, detailed analysis of construction projects through embedded chips, software, etc, real-time automated measurement of trading stock and deductible expenditure.

The technologies are at various stages of development and the Going Digital Project is focusing early agreement on areas of most significance, whether to develop standards or mitigate risk. For example, OECD member countries and six non-member countries in May 2019 adopted Principles on Artificial Intelligence (AI) (OECD, 2019d). The policy framework to implement these is broad and includes a focus on digital government and the knowledge and skills to implement the Principles on AI across the workforce. A similar approach was taken in the OECD Council Recommendation, also in 2019, on Digital Security of Critical Activities (OECD, 2019e).

The Going Digital Project continues to develop the principles and approaches that allow governments to implement each element of the framework in a broadly consistent way to ensure maximum opportunity for international cooperation and collaboration. It is also undertaking a comprehensive review of progress in selected participating countries, which act as a reference point for others. The reports undertaken by governments in collaboration with the OECD provide insights into the development of the culture and skills required for digital transformation.

2.2 How have governments fared: lessons for tax administration

Two recent reports are from Sweden – an advanced economy with a long history of e-government and citizens' connectivity and one of the most advanced levels of digitalisation of its society and economy (OECD, 2019f, p. 46); and Mexico, which is more recent in developing its capability, but has partnered with the OECD since 2005 to help drive sustainable and inclusive transformation (OECD, 2020).

There are several themes in the Swedish report relevant to building public sector capability generally and which apply particularly to tax administration.¹

Moving from e-government to digital government requires a holistic and user-driven approach, which is different to the more silo-based, uncoordinated and less collaborative approach that reflects legacy governance and structures. This is especially important for tax authorities, which operate at the forefront of digital government in everything from lifetime taxpayer management, through to international information and data exchange. It translates directly into the skills required both at the leadership level and for operational tax officers. They need the capabilities to transcend disciplinary, divisional and international boundaries; to translate complex technical issues into language and apply them in processes that can be both taught to intelligent machines and explained to other areas of government and taxpayers.

¹ The themes are drawn from across the report but are also reflected in the Executive Summary (OECD, 2019f, p. 11).

This requires cultural change and an ability to embrace digital innovation, experimentation, collaboration to develop digital and data-driven government and tax administration. Sweden found change across government was hindered by a risk averse approach with a fear of failure, complacency with the status quo, and a lack of urgency in providing improved public value in an increasingly digital society. Part of the way to overcome this is for the public sector (and tax administration) to work closely with public and external practitioners in increasingly agile multidisciplinary teams, while operating within a sophisticated and adaptable governance framework to improve performance and public trust. Otherwise each level of government could face an accelerated loss of trust and be perceived as out of touch with societal and technological trends (OECD, 2014; Lindgren & van Veenstra, 2018).

Fundamental to this transformation is talent attraction and internal skill development. A specific recommendation in the report is to '[d]efine the needed digital and data skills and develop related job profiles and career paths to guide a needs assessment, identify gaps, decide on the skills and talent to attract, and retrain personnel' (OECD, 2019f, p. 13). This is especially true of the highly technical specialist skill requirements in tax administration. There need to be training programs to build awareness, knowledge, capabilities and skills at every level, but particularly for the leadership. The whole tax administration workforce needs this skill development and it needs to be led from the top down. The programs need to build both digital literacies and to change the culture by enabling the workforce to operate effectively as a digital, data-driven tax administration. The report encourages open knowledge platforms for training and capacity building in partnership with libraries, universities and other academic institutions to increase reach and participation. It should be noted that many tax administrations have in place such partnerships with knowledge resources and providers.

Given Mexico's more recent history and later stage adoption of e-government, it has some advantages over Sweden. The Mexican Report focuses on the importance of rapid evolution from e-government to digital government, in which Mexico is a leader globally (OECD, 2020, p. 13). However, as time passes, each country report is stressing the increased urgency of change if governments 'do not want to be outpaced, provide outdated services or run the risk of policy failures' (OECD, 2020, p. 9). The broad themes of the Report on Mexico are very similar to those in Sweden, contextualised to Mexico's very different economy and society, but raise specific issues pertinent to digital government and the tax administration.

Mexico has embraced the critical importance of a holistic and user-driven approach to public sector services, in 2013 recognising access to the Internet and broadband as a constitutional right for all Mexicans (Constitution of Mexico, 1917). However, the report notes how critical Information and Communications Technology (ICT) infrastructure is to maintain momentum to give meaning to such rights and ensure inclusivity, as Mexico's growth rate has slowed significantly over recent years from its historical high levels (OECD, 2020, p. 42).

Robust and comprehensive legislative, governance and organisational arrangements are essential to enable genuine and sustainable cultural change across the public sector. Mexico has had strong political leadership in the drive to digital transformation, without establishing sufficiently the supporting regulatory and organisational structures at a level that ensures continued rapid progress when political priorities change (OECD, 2020, p. 17). However, the introduction of guidelines, standards and principles for

digitalisation of public services within a new governance framework, consistent with those in other OECD countries, has acted as a basis for the move to whole of government implementation (OECD, 2020, p. 58).

A primary focus throughout the Report is on the need for the Mexican public sector ‘to deploy strategies to reskill, upskill and acquire new talent in order to deliver on its digital ambitions’ (OECD, 2020, p. 21). The analysis and recommendations support:

- *Comprehensive training at scale* across the scope of digital transformation, using digital platforms to support learning;
- *Mapping the skills gaps* within the public sector to identify those skills and capabilities it can build internally and those it needs to acquire, both specialist technical skills and multi-disciplinary skills to lead cross-organisational digital transformation and improve public sector performance;
- *Attraction and retention of the right talent* by ensuring that hiring processes, human resource management, compensation and recognition support digital transformation and public service leadership;
- *Clear definition of roles, responsibilities and accountabilities* equivalent to the private sector, to ensure that highly skilled activities are both recognised, and performance delivered.

2.3 Australia’s experience as a global leader in digital government and tax administration

Australia is a leading proponent of digital government and participant in the OECD work. It has a Digital Transformation Strategy (DTS) for 2018-2025 with the stated aim to make government easy to deal with, informed by users and fit for the digital age (Digital Transformation Agency, Australia, 2018). The DTS is designed to focus on public value through being a global leader across three themes (Digital Transformation Agency, Australia, 2018, p. 4):

1. Service delivery, customer experience, simplicity, flexibility, and ease of use;
2. Equity (including choice to use digital services), fairness, and an Australian addition: the least possible government intervention;
3. Public trust, protection of data and privacy, and security.

The DTS articulates the steps being taken for practical implementation of digital transformation across government and both explicitly and implicitly adopts the OECD approaches to holistic adoption of digital government discussed above. However, it acknowledges that it is moving too slowly and more slowly than the private sector, which represents a risk across all dimensions of the DTS similar to that identified in both the Swedish and Mexican reports. This view is supported by a 2019 independent review of the Australian Public Service (APS), which stated that (Department of the Prime Minister and Cabinet, Australia, 2019, p. 16): ‘the APS is not performing at its best today and it is not ready for the big changes and challenges that Australia will face between now and 2030’.

The Australian taxation and welfare systems are core drivers of digital government implementation and the DTS uses existing Australian Taxation Office (ATO) initiatives as exemplars both of what and how government as a whole will change. The ATO also

demonstrates early projects undertaken to provide the digital infrastructure to keep building a digital tax and welfare organisation.

However, while the DTS demonstrates that Australia is working or planning across all seven components of a digital technology ecosystem discussed above (OECD, 2019c, p. 18), much is at an early stage. So, too is its capability uplift, for which the APS review recommends urgent building and measuring (Department of the Prime Minister and Cabinet, Australia, 2019, p. 60). The aspirations of the DTS provide guidance on the characteristics it requires in its future workforce, which encompasses tax administration (Digital Transformation Agency, Australia, 2018, p. 39):

Our five objectives to be fit for the digital age are:

- 01 Equip our people and Australian businesses with the skills necessary to deliver world-leading digital services.
- 02 Adopt better ways of working that bring people together quickly and efficiently and reduce risk.
- 03 Collaborate with other sectors, including small and medium-sized enterprises, community organisations and academia.
- 04 Develop sustainable platforms that we can share across government.
- 05 Deliver value for people and businesses by managing costs and risks.

While the DTS reiterates comprehensive training, mapping skills gaps, retention of talent and clear definition of roles and responsibilities described above to enable public sector workforce transformation in Mexico, there are additional capabilities required for digital transformation (and relevant particularly to taxation) that emerge from the high level strategy and case studies. They are reinforced in the independent review of the APS (Department of the Prime Minister and Cabinet, Australia, 2019), and can be summarised and applied to tax administration as follows.

Partnering widely with businesses, both as providers and collaborators, is now common, with an emphasis on supporting competition and assisting businesses, particularly small and medium-sized enterprises, to build their skills to collaborate and compete to innovate. This is vital for tax administration as its partnership extends from co-creating software supporting a client-focused technology architecture, to using artificial intelligence in real-time audit and information exchange and developing systems that support taxpayer data capabilities more generally rather than simply operating in an audit and compliance framework.

Tax administration needs more of its employees to develop higher level skills both for digital and face-to-face interaction, to analyse, understand, problem solve, and resolve confrontations and disputes. There is increasing need to act as a concierge for whole of government support services arising from a specific event or enquiry, using advanced digital technologies to do so. Tax authorities are widely used to deliver social support and transfer payments and as technology supports this functional shift. Client interaction across a range of services will become essential to support appropriate use of technologies, while ensuring the human dimension fills critical delivery gaps.

Extending from this, technology will soon allow tax authorities to connect even more seamlessly into taxpayers' significant life events, (e.g., births, deaths, major medical

events) or business events (business formation, merger, insolvency). Tax employees will need to develop high levels of emotional awareness and customer experience management to proactively use the information in a way that builds trust and ensures taxpayers see the clear benefits.

The effectiveness of technology driven cyber security, artificial intelligence, data analytics and similar applications will require increasing levels of human judgment and problem-solving capability at every level of the tax workforce. Additionally, ethics, security and cross-departmental and governmental considerations become relevant at lower levels and involve less experienced personnel.

The common theme across this and earlier reports is that the silo-based approach to working will affect the tax administration particularly. The cross-functional interaction needed to make the tax system work effectively is made easier by technology. However, technology will require new ways of working that are more dynamic, responsive, flexible, less hierarchical with the ability to work easily across structural and organisational boundaries. This also requires tax authorities to develop very different leadership skills to achieve comprehensive digital transformation and cultural change.

The drivers for tax authorities include the broadening of their remit from the traditional areas of tax information gathering, audit and investigation, assessment, collection and enforcement, review, dispute resolution, and support for litigation. Social transfers and payments, administration of student loan systems, and management of massive data sets, information flows and funds all contribute to the imperative for the tax workforce at every level to develop their knowledge, skills and capabilities.

There is a transformation globally from e-government to digital government. It requires new and changing knowledge, skills and capabilities. Tax administrations historically have had to have some of the largest and cleanest datasets and are ideally positioned to lead digital government. If some understanding is established of how tax administration is responding to digital government, it is possible to begin mapping the needs of its future workforce.

3. THE RESPONSE OF TAX ADMINISTRATION TO DIGITAL GOVERNMENT

3.1 The OECD Comparative Information series on Tax Administration

The OECD Comparative Information series on Tax Administration provides a detailed history of the progress of tax administration from e-government to the current focus on digital transformation and digital government. *Tax administration 2019* (OECD, 2019g) reviews tax systems and administration in 58 advanced and emerging economies and includes the International Survey on Revenue Administration, the most comprehensive of its kind administered by the Inter-American Center of Tax Administrations, the International Monetary Fund, Intra-European Organisation of Tax Administrations and the OECD. While recognising that this is a high-level survey instrument that does not cater to the granularity and contextual differentiation that would allow detailed analysis, it does provide a basis for the OECD's expert team to provide an informed set of comparisons and good practice examples.

Tax administration 2019 (OECD, 2019g, p. 22) identifies six major high-level themes shaping tax administration response 'to rapid change through the digitalisation of the economy and the emergence of new business models and ways of working'.

1. *E-Administration*, (which given the move away from e-government to digital government suggests outdated terminology), encompasses digitalisation of delivery, customer service and the move to integrated and holistic digital tax administration using advances in technologies and data-driven government.
2. *Engagement with taxpayers* moves from interaction to active influence, education and communication at scale. This increasingly uses taxpayer centric design and behavioural insights and analytics.
3. *Compliance risk management* is proactive and achieves early intervention. It applies advanced data analytics and specialisation that begins from compliance design, works through taxpayer segmentation and highly tailored and personalised interactions, to deliver more effective multiple level internal, inter-agency and inter-governmental co-operation with associated improvements in transparency.
4. *Compliance by design* (a systematic design-led approach that has developed from the relatively new science of ‘design-thinking’) is advancing rapidly to allow more effective data-sharing, for example to significantly expand pre-filling of returns, applicable systemically for multiple classes of taxpayers. This includes work with third party software developers to integrate data-sharing but maintaining secure chains of information.
5. *Tax administration resources* are generally declining as a percentage of gross domestic product (GDP), often in combination with a reduction in investment in ICT. Many tax administrations face an ageing workforce. Although almost all have human resource strategies, they need comprehensive plans to upskill existing staff, and formal training cycle processes.
6. *International cooperation at scale* is a feature of OECD and international agency work, which is driving digitalisation, common standards and the automatic transfer of massive information sets to allow effective risk and compliance management. The trend towards broadening the scope of cooperation and extending transparency is gaining momentum from the digital integration of the global economy as it transcends borders.

The language is redolent of e-government, but that reflects the nature of most tax administrations participating in the surveys. *Tax administration 2019* is in part an educational document supporting the OECD case for, and self-interest in, multilateral change towards digital government while embracing participation by emerging economies on that journey. The structure and examples highlight the innovative and good practice. The comparative tables on different aspects of tax authority operations, outcomes and structures gently challenge the laggards through transparency.

Where *Tax administration 2017* (OECD, 2017) provided a broad perspective on the unfolding digitalisation of tax administration, the 2019 report more specifically identifies the implementation of changes responding to digitalisation. It is not within the scope of this article to document the application to tax administration of the seven components of the current ecosystem of interdependent digital technologies identified in the Going Digital Project discussed in section 2. Others have provided comprehensive analysis (Bornman & Wassermann, 2020; see also Bentley, 2019). The focus here is on

the fact of operational implementation and the likely changing characteristics of the tax administration workforce.

Tax administration 2017 (OECD, 2017, p. 134) provides the examples of the Canada Revenue Agency and the Inland Revenue Authority of Singapore, which have long-term workforce strategies to identify the changing skillsets required as digitalisation is implemented, and to recruit, train and retain staff accordingly. However, these countries were identified as leaders, suggesting that the concerns identified in section 2 are equally applicable to tax administration.

Tax administration 2019 (OECD, 2019g, p. 121) identifies the significant challenges for tax administrations in '[t]he “double pressure” created from reduced budgets and technology change' and focuses a substantial part of its 2019 analysis on workforce capability. However, it identifies (OECD, 2019g, p. 33) from the surveys it conducted that the median level of innovation, which can be interpreted generally as adoption of digital administration systems and practices, was 40% and that most tax agencies are in the planning stage of their workforce transformation for digital government. The challenges are exacerbated by the increasing percentage of staff older than 54 years in two-thirds of the administrations providing data, where they are also facing change, the need for new skills, but must retain 'key intellectual knowledge' (OECD, 2019g, p. 123). An added challenge for tax administrations seeking to engage with and understand taxpayers and third-party providers is that 'female staff remains proportionally underrepresented in executive positions and significantly underrepresented' overall in many administrations (OECD, 2019g, p. 125). As the human dimension of oversight of digital systems becomes critical, it is as challenging for tax authorities to ensure a balanced and diverse perspective representative of the broader population and its clients, as it is for the rest of society.

3.2 Workforce challenges for tax authorities

The traditional analysis of tax administration follows the categorisation of activity; that is, the registration, identification and authentication of taxpayers; assessment of taxes; verification; collection; and disputes (Bentley, 2007). While each tends to require specialisation and some specialists, most tax agencies have built a broad workforce capability that allows transfer between the sections of the tax administration dealing with each category. This article focuses on emerging capabilities, both specialist and generalist, required to implement digital government, rather than trying to fit those capabilities into particular categories of tax administration.

Section 2 of this article identified the benefit of moving away from traditional categories to address holistic digital government. This is reinforced by *Tax administration 2019*, which notes that 97% of respondent countries have competency-based human resource strategies, almost all have comprehensive job descriptions, 79% have job catalogues, 100% have training strategies (OECD, 2019g, p. 128). However, it goes on to say that all tax administrations recognise the importance of preparing existing staff for change, have strategies to build internal capabilities, and 80% have formal plans to address gaps or targets to increase capability, including hiring a range of specialists (OECD, 2019g, p. 133).

The traditional approach of a high-level survey tends simply to reinforce a sense of tax administrations believing that they have the capability either in place or in training ready to undertake digital transformation, an issue noted in the literature (Scott, DeLone &

Golden, 2016). The OECD's own evidence outlined in section 2 above demonstrates the problems with mutual reinforcement of this kind. Advanced countries, as in the Swedish report and Australian example, assume that their existing approaches to managing and developing their human capital will continue to work. Emerging economies like Mexico struggle to cascade workforce change across the tax administration.

Tax administration 2019 (OECD, 2019g) provides valuable insights into the changing capabilities variously identified across the 58 tax administrations to prepare themselves for digital transformation. While the next section extracts them to provide a useful current perception, it is evident that, as with any organisation, each tax authority needs to undertake a comprehensive mapping and skills assessment of its workforce to allow it to implement comprehensive skilling and reskilling programs.

The OECD is ideally placed to coordinate the development specifically for tax authorities of meaningful comparative benchmarks taking account of definitional and contextual differences to help tax authorities to identify gaps. In the same way as it provides guides to new technologies (OECD, 2016), it should develop frameworks and tools to design for workforce development specifically.

At a general level, the OECD and its partner global organisations are ideally placed to provide a comprehensive training and development platform focused on tax administration, partnering with global online education platform providers. This can cover the general knowledge, skills and capabilities required in tax administration and allows for continual updating as digital technologies and methods change. Tax authorities can then focus their limited training resources on providing programs to upgrade the knowledge, skills and capabilities that are specialised and contextual to their own tax administration,

4. CHANGING CAPABILITIES FOR THE FUTURE TAX ADMINISTRATION WORKFORCE

What then are the knowledge, skills, and capabilities required for a tax administration workforce implementing digital government? Tax administration agencies are among the largest operational organisations. The operational requirements of the bureaucracy reflect common functions ranging from finance and human resources, through to resourcing and physical and technological infrastructure. These are not the focus of this article. Rather, the focus is on those capabilities specific to the administration of taxation and related administrative responsibilities often included in the remit of tax administration agencies (OECD, 2019g, p. 66).

There are, however, some contextual changes that are applicable generally for roles across tax administration. Projects and associated reports ranging from the World Economic Forum (WEF) through to the OECD² have analysed almost every aspect of the future world of work. Programmes and Centres³ have been formed and often these

² See, respectively, World Economic Forum, 'Shaping the future of the new economy and society', <https://www.weforum.org/platforms/shaping-the-future-of-the-new-economy-and-society>, and OECD, 'The future of work', <https://www.oecd.org/employment/future-of-work/>.

³ See, e.g., Oxford Martin School, 'Future of work', <https://www.oxfordmartin.ox.ac.uk/future-of-work>, Swinburne University of Technology Centre for the New Workforce, 'Learning for the future of work', <https://www.swinburne.edu.au/new-workforce> and The Australia Institute Centre for Future Work, <https://www.futurework.org.au>.

collaborate with large companies or consultancy organisations (Tytler et al., 2019), which also generate a significant literature of their own.⁴ Given that much of the analysis is predictive, extrapolates uncertain trends, and is often based on surveys asking respondents to predict an uncertain future and their response to it, the packaging of conclusions and recommendations, while compelling and sometimes alarming reading, does not in itself form a basis for effective planning (Bentley, 2019, p. 681).

Nonetheless, the general trends are clearly articulated, the capabilities required to transition to future types of work and role are increasingly well-defined, and the future of work and roles are themselves becoming clearer. However, it is important to remember that change happens at different rates across sectors and societies. Tax administration needs to cater to the different segments of society (Millane & Stewart, 2019), itself both embracing digital government and supporting a substantial client base that finds it difficult or impossible to access digital services (Bevacqua & Renolds, 2019).

4.1 Global trends that will shape the nature of the future tax workforce

There are broad trends reinforcing or shaping digital transformation of society, which will help define the capabilities and skills needed in digital tax administration.

The increasing global interconnection and integration combines with platform-based and other digital business models that facilitate borderless trade, commerce and digital networks (WEF, 2019). These have been fundamental to base erosion and profit shifting and have developed tax administration capability for global information exchange and tracking of tax avoidance and evasion. Changing political, economic and social structures such as climate change, global migration and rapid urbanisation present significant challenges and ensure that increasingly all work will require understanding and collaboration across borders, diverse cultures and worldviews (WEF, 2018). They will inevitably shape tax policy, definitions and taxpayer management and understanding, but in ways that may radically differ depending on national policies. Yet, tax officers must understand these differences and apply their specialist knowledge in an increasingly integrated and borderless digital environment.

The differential pace and scale of changes in technology, their impact and implementation, increasingly occurs swiftly, often with little warning, and often without time to determine ethical and legal parameters, for example cryptocurrencies and sectoral disruptions such as online retail and taxis (Bentley, 2020). This used to be governed through clear hierarchical structures that could analyse the effects before providing guidelines and procedures through a comprehensive process. Increasingly, the effects of technological integration are unclear and tax officers may be required to make decisions with little knowledge of the broader policy or precedential implications, for example, in a tax audit or a low-level ruling request, or they may have to approve a basic computer algorithm providing answers to frequently asked questions on individual tax matters.

The 2020 COVID-19 pandemic illustrates the changing social and economic contexts that may exacerbate social instability and inequality, and reduce social cohesion within each society. This is evident particularly if resources become constrained and

⁴ See, e.g., McKinsey Global Institute, 'Labour markets', <https://www.mckinsey.com/mgi/our-research/labor-markets>.

environmental and health risks eventuate, leading to volatility, cyclical patterns of poverty and widening education and skills gaps (WEF, 2020). Tax officers must operate effectively through change, but also implementing government responses to that change at scale and speed. This makes the tax administration an increasingly dynamic workplace and with practices, physical and virtual, that require much more agile decision-making, with more independence at the local level. It impacts on the nature and conceptualisation of careers in tax administration; and the need for all tax administrators to embrace lifelong and self-directed learning (Foundation for Young Australians, 2017).

4.2 The skills and capabilities of the future tax administrator

The general skills and capabilities required for the future workforce in such a changing, challenging and dynamic environment are the subject of their own extensive literature (Oliver & de St Jorre, 2018; Oliver, 2013). This is in the context of the seven technology areas identified in section 2.1 above, that are likely to transform workplaces: computing power; internet of things; 5G networks; cloud computing; big data; artificial intelligence; and blockchain. *The new work smarts* report analysed large datasets to identify, here summarised for knowledge workers in particular, what skills and capabilities they would need to succeed in a digital world (The Foundation for Young Australians, 2017).

- Communication skills, digital literacy and the ability to assimilate and convey complex information;
- Creativity and design thinking using the processes of discovery and iteration (quickly developing alternative solutions and learning from what did and did not work) to deliver results;
- Interpersonal, cross-cultural skills, emotional intelligence and the ability to coordinate and negotiate;
- Continuous learning in and out of the workplace, requiring reflection and self-awareness;
- Strategic and critical thinking, problem solving, analysis and judgement, all often drawing on higher knowledge levels of science, maths and technology;
- An entrepreneurial mindset drawing on self-direction, adaptability and initiative, organisation, planning and teamwork.

The *100 jobs of the future* report added the importance of transdisciplinarity, the human-machine interface and the continued importance of management of humans and machines in a digital workplace (Tytler et al., 2019). McKinsey research highlights also the importance of systems thinking: the ability to identify, understand and respond to interconnected processes in large, complex systems (Coyne et al., 2019). It emphasises the development of new business models based around customer experience and option optimisation that takes account of both upstream and downstream interdependencies.

Tax administrators need to use these skills and capabilities in their structure. For Australia, therefore, the recommendations of the APS review identify similar and some additional requirements for building capability including: collaboration; openness and integrity; performance management; professionalisation and in-house skills and

expertise; digital maturity; diversity and inclusion; and fit-for-purpose management structures and ways of working (Department of the Prime Minister and Cabinet, Australia, 2019, p. 73).

A key-word analysis of *Tax administration 2019* (OECD, 2019g) demonstrates that all the skills and capabilities identified above have become central to the way tax administration is developing and demonstrated throughout the good practice case studies. The report (OECD, 2019g, p. 33) stresses capabilities relevant to digital government that were simply not part of the previous position descriptions of any tax officer, but which are now increasingly required at either a specialist or general level. Tax administrators simply cannot do their job unless they at least understand what these capabilities are, and often they must practice them as part of their everyday role.

4.3 The implications for tax administration

Innovative methodologies have become ubiquitous, such as agile project management, engagement of stakeholders in collaborative design, and the ability to conduct all aspects of end-user testing of new digital and e-services. Both within the tax administration and in its user and experience focused design and implementation, technology means that the operational tasks are being replaced by stronger taxpayer engagement. It is the latest iteration of the approach to improving taxpayer trust and compliance.

Innovative techniques underpin these digitally supported methodologies and often require capabilities to use blockchain, robotic process automation, artificial intelligence, chatbots and biometric identification as part of everyday tax administration. There is also increasing demand for specialist capabilities such as data science, wide-ranging analytic expertise, psychology, criminology, and ethnographic and behavioural research. These capabilities underpin the design of programs for activities such as tax audit, debt collection, evasion, tax website user experiences, and identification of those taxpayers not digitally engaged and requiring other forms of connection and support. These capabilities would extend to new roles, such as tax-informed concept developers, digital and social-media marketers, digital communication specialists, and ICT engineers (OECD, 2019a, p. 207).

As the analysis of workforce capability becomes more particular to the functions and type of organisation, so the emphasis on specialist and technical skills increases. Tax administration is dependent on knowledge and technical specialists. The literature suggests that most workers need or should develop general skills and capabilities in addition to their deep specialist and technical knowledge and skills (Fam, Neuhauser & Gibbs, 2018). Measuring workforce capability effectively is a challenge (Nienaber & Sewdass, 2016). Given the composition of the workforce in most tax administrations, both the general and specialist knowledge, skills and capabilities need to continuously improve. As both the Swedish and Mexican reports find, the base level capabilities often need urgent attention. The Australian Productivity Commission (2017, p. 83) argues that continuous skills formation is critical to enable effective labour markets to support and improve living standards.

The continuing benefits of post-secondary educational qualifications as they are currently constructed have come into question (Productivity Commission, 2017, p. 92). However, the literature strongly endorses the acquisition of deep technical knowledge, skills and capabilities to support the emerging general skills and capabilities that equip

workers to thrive in a digital society (Tytler et al., 2019, p. 10; WEF, 2018). The OECD notes that in occupations primarily based in the use of knowledge, such as most in tax administration, the share of highly skilled jobs has increased by 25% over the last 20 years.⁵ The graduate premium remains substantial and will impact on tax administration budgets (e.g., Norton & Cherastidtham, 2018; Lindley & Machin, 2016).

Analysis of the arguments of the Productivity Commission and other reports demonstrates the critical importance of gaining deep specialist skills but then continuously improving and adapting them to meet any knowledge or skills gaps. Recent reports are more concerned about the significant continuing skills uplift required through postgraduate education for knowledge professionals (Rogers & Tran-Nguyen, 2019).

Particularly for tax administrations, there is a pressing need to ensure that workers under-qualified for digital government can reskill and upskill, given the trend towards the hollowing out of the workforce where such skilling does not occur (e.g., Allas et al., 2019; WEF, 2019). The literature, particularly the general analysis in national and international reports of current trends and international job postings, is quite clear on the general skills and capabilities that all professional knowledge workers require to remain effective in a digital society.

Drawing together the themes and aligning them with trends identified in *Tax administration 2019* (OECD, 2019g), it is possible to identify some of the specialist characteristics of roles that will become central to digital tax administration (Bentley, 2019). For the purposes of this article and simply to provide a framework for discussion, they can be clustered into eight groups. These broadly reflect alignment between skill and capability areas, the requirements of digital tax administration, and emerging job trends identified and discussed (OECD, 2019g; Inland Revenue, Te Tari Taake, New Zealand, 2018; Durrant-Whyte, 2015, p. 237):

- Strategy, planning, governance and ethics: the roles that lead, guide, direct and govern the development of digital government across the multiple streams of tax administration, particularly with increasing third-party provision, ensuring constant attention to the ethics and integrity that will assure public perceptions of trust, fairness and public value. Ensuring tax administration upholds fundamental values of society, such as diversity and inclusion.
- Taxation domain specialisation: the roles that embrace, manage and coordinate new digital technologies to implement effectively high quality tax technical administration, locally and globally.
- Conflict resolution: the roles that lead and manage digital technologies to deliver highly personalised conflict and dispute resolution externally to taxpayers/customers and broader stakeholders; and internally during a period of significant change – within the tax administration, within the tax administration partner network, and across all third-party joint provision of services or activities.

⁵ OECD, 'The future of work', <https://www.oecd.org/employment/future-of-work/>.

- Human-centred design: the design, behavioural psychologists, ethnographers, analysts and programmers, for example, who map the ‘journeys’ and ‘life events’ or ‘experiences’ of different stakeholders across the tax administration value chain both external and internal, to support an inherent and comprehensive culture of trust, service and public value. This has become central to the tax compliance and engagement focus. Tax events are mapped to a taxpayer’s journey, for example, birth, death, business formation, buying a property etc. where the taxpayer receives ‘personalised’ digital interventions triggered by artificial intelligence from another automated notification from a tax event or form recorded elsewhere in government.
- Transdisciplinary integration, project leadership and management: the roles that enable application of the new innovative techniques and methodologies identified as a pre-requisite to effective digital government and digital tax administration.
- Digital technology specialisation: the roles that ‘architect’, conceptualise, design, use the deep data analytics, and implement the multiple enterprise, collaborative and specific technology systems and solutions to deliver digital tax administration.
- Analysis: the roles that traverse analysis of quantitative and qualitative data ranging across the spectrum from the highly technology driven to human-centred and behavioural, but all using highly specialised analytical frameworks and skills that must cross disciplinary and organisational boundaries.
- Workforce cultural transformation, development and education: the roles responsible for designing, developing and implementing workforce strategies that transform culture, embed values, ensure continuous education and learning and thereby attract, retain and develop talent.

Many of these characteristics sound unfamiliar and alien. How do they relate to current roles and tasks? Does this really have anything to do with tax administration? The challenge is that this is precisely what the literature and global strategic forecasts are telling us: tax administration in 10 years’ time will have very different roles and responsibilities, and therefore designations, than it does today. In the knowledge sector, which includes tax administration, emerging digital technologies will fundamentally change tasks and roles as automation and artificial intelligence hollow out much of the operational work done today. Instead, the evidence set out in the reports suggests that there will job growth, but in more highly skilled roles that focus on intelligent management of technologies and uniquely human skills such as empathy, design and creativity.

As a tax administration maps its own specific requirements for a classification of potential future roles, gaps will emerge both in its available capability and in the classification. Context and culture will provide different emphases. However, as *Tax administration 2019* (OECD, 2019g) demonstrates, all participants in that survey are at least at an early stage of conceptualising a plan to move their workforces to digital tax administration.

5. A CAPABILITY STRATEGY FOR TAX ADMINISTRATION

Tax administration 2019 (OECD, 2019g, p. 133) notes that most tax administrations recognise the importance of transforming their workforce to deliver digital tax administration. It suggests 80% have gap analyses with formal plans to address these, train staff and develop appropriate capabilities. The realities do not align with most OECD reports on the progress to digital government discussed in this article. More than a dozen detailed individual country reports undertaken by the OECD support this conclusion,⁶ which is also reinforced by the experience of New Zealand, traditionally a leader in digital transformation. New Zealand's *Strategy for a digital public service, programme of work* in 2020 notes that much of the work in 'Leadership, people, culture', including determining future capability needs and determining a digital strategy governance, partnership and implementation model, is yet to be started (New Zealand Government, Department of Internal Affairs, 2020). It is not surprising, as it aligns with general corporate preparedness (e.g., WEF, 2019, p. 19), described for many companies as 'still in its infancy, remaining overly based on short-term (quarterly or at most annual) time horizons and simple headcount statistics'.

5.1 The pressing need to develop a tax administration capability strategy

The World Economic Forum (2019, p. 20), recommends that digital transformation should leverage strategic workforce planning to establish strategic skills mapping within jobs and close the management knowledge gap of skills and talent required. To achieve this, it argues, will require both targeted and general upskilling at scale using appropriate learning curricula, aligned to skills needs. It will also require a rethink of organisational structures, transformation of the culture to attract and retain next generation talent, lifelong learning and to boost diversity.

This section addresses some of the issues that should shape a strategy for a tax administration to implement the first two steps: managing the skills gap; and upskilling the workforce (Rajasekar & Khan, 2013, p. 38). The literature on organisational change and workforce development is substantial. This section simply identifies the challenges that digital government and digital tax administration bring to the design of a high-level workforce strategy.

As noted above, the evidence points to a hollowing out of middle-level jobs that are automatable (WEF, 2018, 2019), which will gather momentum in tax administration, with the adoption of digital government providing the infrastructure (OECD, 2014) and digital tax administration continuing to lead progress (OECD, 2019g). Although the momentum is evident, Caruso (2018) warns that it is likely to be uneven and technology will always be shaped by the social context and practical constraints.

While outsourcing of functions is increasing, it is likely that this will remain largely confined to 'support business delivery and manage costs and improve efficiency' (OECD, 2019g, p. 120). The OECD Report on Mexico suggests that in a resource-constrained environment, the danger of over-reliance on outsourcing is that it can lead to undermining of the public sector's internal capabilities to deliver on core functions (OECD, 2020, p. 64). The general powers of tax administration in most jurisdictions do

⁶ See OECD, 'OECD digital government studies', https://www.oecd-ilibrary.org/governance/oecd-digital-government-studies_24131962.

not permit the delegation or outsourcing of the general operation of the tax system or its administration (Bentley, 2007, p. 254). This means that workforce renewal, upskilling and reskilling is essential to meet the requirements for jobs in the role clusters identified above, but the imperative occurs in an environment in which ‘double pressure’ from reduced budgets and technology change, remains a significant management issue over time (OECD, 2019g, p. 121).

5.2 Significant risks to avoid

There are at least three significant risks for tax administrations that flow from a resource-constrained environment. The first is a failure to understand and acknowledge the size of the challenge, in part simply because it is a transformation to digital tax administration following an already substantial transformation to electronic tax administration. This was identified in the Swedish report (OECD, 2019f).

The second is the relative unpreparedness for the comprehensive data-driven human resources management required to transform the tax administration workforce at scale, as recommended by the OECD Council (2019b). The OECD report, *The path to becoming a data-driven public sector*, notes that (2019a, p. 156):

HR [human resources] data are abundant However, most countries only collect HR data, as they struggle with scientifically analysing, insightfully interpreting and proactively using them for better management decision making and HRM [human resources management] policy development and delivery. They are still not sure how to make sense of all these data or what to do with them; there are a lot of challenges in making DDHRM [data-driven human resources management] work well. Data scientist is not yet a common job profile within HR departments.

The third is that the incremental workforce capability approach identified in many businesses (WEF, 2019, p. 19) could become the primary option for the tax workforce, providing general incremental training that does not deliver the required skills uplift at scale. Resource constraints compound the challenge of reinventing a large-scale workforce development training program that is systematically embedded. There is therefore a natural tendency instead to rely on recruitment, in a market for talent that is increasingly competitive, combined with targeted headline leadership training (WEF, 2017, p. 11). However, these alone are an insufficient response to move to digital government and digital tax administration at the current pace of change (Department of the Prime Minister and Cabinet, Australia, 2019; OECD, 2019g, pp. 120ff).

While any workforce will require an uplift of the general skills and capabilities required to work effectively in digital tax administration, the specialist clusters identified in section 4.3 above will require their own specialist training and development, often disaggregated into sub-clusters of like roles. The Australian Department of Employment also emphasises the importance of transition options across clusters (Australian Government, Department of Employment, Skills, Small and Family Business, 2019). The scale of the challenge is made more significant by the fact that the seven components of the digital ecosystem identified in section 2 are emerging at best. This supports the focus by the OECD on early adoption of data-driven human resource management (DDHRM) in tax administration to ensure effective planning, skills mapping and appropriate skilling of the tax administration workforce in response to rapid deployment of new technologies (OECD, 2019b, Rec. IV.2):

1. Developing a long-term, strategic and systematic approach to people management based on evidence and inclusive planning that:
 - a. Is informed by evidence-based assessment of skills needed and skills available to meet current and future core business requirements, using HR and workforce data for strategic and predictive analytics, while taking all necessary steps to ensure data privacy.

5.3 Map the tax administration skills required and develop a skills development plan

First, as identified in the earlier analysis, while the general skill and capability gaps are reasonably well defined, albeit changing rapidly, the next and highly complex step is to define much more accurately and to test the role clusters identified above as they apply to each current role across the tax administration. It requires a formal classification and definition to update and likely reshape the job dictionaries, job catalogues and job descriptions (OECD, 2019g, p. 128). This allows analysis of how jobs will change to fit the eight role clusters identified (or disappear) and to map the particular skills for each role and the skills gap for individuals in those roles. Much work has been done in developing skills frameworks both nationally (for example, Singapore) and professionally (for example, the Australian Computer Society). However, these do not directly address digital tax administration.

Second, it is important to develop a training system that responds to tax administration need. Rajasekar and Khan (2013, p. 39) note that the literature defines the training process to require identification of training and development needs, design of the intervention, its delivery and its evaluation. The World Economic Forum recommends that a critical element for digital preparedness is to shape the future talent pipeline (WEF, 2019, p. 20). This is reinforced by the Recommendation of the OECD Council on Public Service Leadership and Capability to create a learning culture and environment through (OECD, 2019b, Rec. III.4):

- a. Identifying employee development as a core management task of every public manager and encouraging the use of employees' full skill-sets;
- b. Encouraging and incentivising employees to proactively engage in continuous self-development and learning, and providing them with quality opportunities to do so; and
- c. Valuing different learning approaches and contexts, linked to the type of skill-set and ambition or capacity of the learner.

5.4 Developing a learning culture in the tax administration workforce

To implement a learning culture requires employee engagement with the culture and an understanding of why it is necessary (WEF, 2019, p. 23). The Centre for the New Workforce Australian National Survey Report found that only 8% of those surveyed were not interested in learning new skills, and 74% were interested either to prepare for opportunities or to do their job better (Centre for the New Workforce, 2019, p. 12). Interestingly, 59% felt that it was primarily their responsibility to prepare themselves for the workforce of the future (p. 14). This is a single survey with an Australian context. Others show a declining interest in new skill acquisition with age (Rogers & Tran-Nguyen, 2019, p. 17). However, it is clear that extensive media and other coverage of digital transformation in the workforce, particularly during the 2020 pandemic, has

raised worker awareness in Australia of ‘the need to develop skills for current and future jobs’ (Rogers & Tran-Nguyen, 2019, p. 5).

Tax administrations will need to determine the relevant and appropriate message to highlight the capability gap applicable to their workforce and ensure alignment between their strategy and training (Rajasekar & Khan, 2013, p. 39). Careful use of appropriate reports and literature can provide evidence-based support for comprehensive training and development (Bell et al., 2017). Any major change requires the employer to build trust through supervisor support, peer support, and the creation of a positive climate through organisational practices that model and reinforce both the learning and the post-training application of the learning (Bell et al., 2017, p. 314).

The tax workforce strategy needs to take account of longer-term estimates of training requirements and ensure that it is applied to the whole workforce (WEF, 2019, p. 23). For example, an AlphaBeta report, *Future skills*, prepared for Google Australia, estimates based on its data analysis that Australians by 2040 will need to spend three additional hours per week learning new skills compared to today’s workers (AlphaBeta, 2019, p. 14). The report further estimates that Australians, to stay employed, will need to acquire 41% of their skills later over the age of 21, up from 19% in 2019 (p. 32). An additional approximately 120 hours of training per employee per year to upskill or reskill does not sound unreasonable, given the continuing professional development requirements of most accredited professions. For some the requirement will likely be greater given the required transition. For others, it may potentially be subsumed into existing training to manage costs. However, it becomes a significant challenge for any tax administration when assessed against its total workforce, particularly given the challenge of continuing cost constraints (OECD, 2019g, p. 121).

Building on a significant body of longitudinal research (Bell et. al, 2017, p. 314), recent literature identifies several initiatives for ‘[e]ncouraging and incentivising employees to proactively engage in continuous self-development and learning’ in the current employment context (OECD, 2019b). There should be formal certification of learning and development to demonstrate additional learning and skills (Rogers & Tran-Nguyen, 2019, pp. 14, 30ff), with credit given towards formal certificates either through recognition of prior experience and workplace learning, or equivalent prior formal or informal learning (Rogers & Tran-Nguyen, 2019, pp. 23, 32). Affordability is an issue and the tax administration as employer should contribute to or bear the cost (Rogers & Tran-Nguyen, 2019, p. 22). Successful programs depend on a range of suitable offerings in different delivery modes (Rogers and Tran-Nguyen, 2019, pp. 20, 30), with delivery of learning and development that is flexible and suited to the lifestyle of busy working professionals (Rogers & Tran-Nguyen, 2019, pp. 21, 30).

Particularly in tax administration, the programs should be clearly relevant to an employee’s work (Rogers & Tran-Nguyen, 2019, p. 29). The Centre for the New Workforce literature review finds that learning in the workplace is both preferred by employees and is most effective in ensuring that the learning does add genuine value by improving skills and capabilities as intended (Centre for the New Workforce, 2019, p. 23; AlphaBeta, 2019, p. 37). However, research shows that it is often a more complex relationship than these surveys suggest, and it is important in framing workplace learning to understand ‘the interrelationship between work conditions, prior experiences, employee motivation, learning, and reactions to training experiences’ (Bell et al., 2017, p. 315).

The additional benefit of learning integrated work or learning in the workplace is that it implements the OECD Council Recommendation that employee development is a core management task of every public manager (OECD, 2019b, Rec. iii.4.a), which the literature generally supports (Bell et al., 2017, p. 314). The iterative process means that every learner is effectively both a learner and a teacher (AlphaBeta, 2019, p. 39). Peers learn from each other, employees learn from their managers, who in turn are both facilitators of learning and learning themselves from their managers (WEF, 2019, p. 21; Smith-Jentsch, Salas & Brannick, 2001). A comprehensive learning and development program with certification, linked to individual development, can integrate seamlessly with performance evaluation and assessment at every level to create the culture of continuous development (AlphaBeta, 2019, p. 45; Productivity Commission, 2017).

This is increasingly made more transparent and usable through e-portfolios that allow ongoing storage of learning artefacts by learners to demonstrate acquisition of knowledge and capabilities to employers (AlphaBeta, 2019, p. 34). Many e-portfolios store certificates for easy verification and they can link to employee performance and development dashboards used in human resource management systems. E-portfolios, secure digital repositories and DDHRM combine to create transparent, affirming and proactive engagement with employees in their learning development, while fulfilling the organisational workforce strategy: a goal of learning and development programs (Rogers & Tran- Nguyen, 2019, p. 33; Rajasekar & Khan, 2013).

5.5 Delivery and cost

Given the distributed nature of the tax administration workforce, learning should be available in online or blended form using learning tools and support designed by expert learning designers and technologists (Rogers & Tran-Nguyen, 2019, p. 23). These are delivered through technologies that engage working learners effectively in their workplace and through additional activities and reflection to support their learning (AlphaBeta, 2019, p. 41; WEF, 2019, p. 25). While some learning is purely driven by artificial intelligence, much is supported by e-learning advisors and the highest quality provision achieves learner satisfaction rates equivalent to blended and face-to-face learning (Mullen, 2020).

Tax administrations often partner training providers ranging from universities to specialist providers and professional bodies. Such partnerships are critical to ensure curricula co-created by the tax administration and the learning provider meet the user needs (Centre for the New Workforce, 2019, p. 31; Rogers & Tran-Nguyen, 2019, p. 25). As the tax administration focuses on delivering high-value customer and user experiences to its clients, it should also deliver high-value learning to its workforce. It will require investment (and this investment is encouraged by taxpayers as users (AiGroup, 2019)). However, there will be opportunities for partnering, both with other tax administrations and organisations, such as the OECD, and with industry, to reduce the cost (OECD, 2019g).

Staff turnover presents a significant hidden cost for tax administrations, particularly in areas of specialist skills. By investing in the skill development of the tax workforce, it supports attraction and retention of high-quality talent, particularly in times and areas of skills shortage (OECD, 2019b).

Failure to do so will otherwise risk the tax administration becoming a human capital resource provider for other employers. The alternative is to undermine long-term stability of the tax administration workforce (WEF, 2019, p. 25).

6. CONCLUSION AND RECOMMENDATIONS

Digital government and digital tax administration are two of the most important functions of government. They are widely recognised as central policy initiatives for governments globally. Digital tax administration is seen as critical to deliver public value and protect the revenue. Countries and international organisations are at different stages of development. Success depends on a shared vision and accountability at all levels of government, and significant investment in a coherent implementation of strategy.

For tax administration this requires a shift to user-driven digital government, investment in resources and infrastructure and carefully managing digital risks. It means attracting and retaining a workforce that has the necessary skills and capabilities; and providing the ongoing training to maintain them. If done well, digital government and digital tax administration support sustainable development, growth and increases citizen trust and well-being. This is particularly important to protect the revenue base.

Swedish, Mexican and Australian detailed audits and analysis support this approach. However, much still needs to be done as planning is still at a high-level. While many countries have committed to map the capabilities of their future workforces, there is little concrete evidence that the activity bears enough relationship to the requirements of a digital tax administration identified in this article.

Implementing the following recommendations derived from the analysis and evaluation of the literature in previous sections will better position a tax administration to succeed in its transition to digital government.

1. Identify from the digital government strategy the critical technology infrastructure and application steps with a clear timeline for implementation. These should encompass at least the implications of growth in computing power; internet of things; 5G networks; cloud computing; big data; artificial intelligence; and blockchain, and how these will impact directly both on the tax administration as user, global partner and as administrator of users both domestically and internationally.
2. Ensure that the digital tax administration clearly differentiates from prior iterations of e-government and embraces the integrated approach of a digitally capable workforce able to implement digital government.
3. Based on these first two steps, map the high-level practical changes across each product and delivery area of the tax administration. From this designate the components that will be wholly automated or delivered through technologies such as artificial intelligence or blockchain (with a clear timeline), those that will be a blend of technology and human action and those that will be almost exclusively human.
4. Identify and map the high-level knowledge, skills and capabilities required to transition to the new state over the different stages and those forecast to be required in the new state based on best current evidence.

5. Consider the opportunities and potential for collaborative skill-sharing with partners across government, global governments, businesses and third parties.
6. Prepare a comprehensive knowledge, skill and capability map of the new workforce with detailed analysis of roles ensuring that the eight knowledge clusters identified in section 4.3 are addressed. Update the job dictionaries, job catalogues and job descriptions for the future workforce.
7. Prepare the strategy to transition to a future data-driven human resource management system to take full advantage of digital infrastructure capability.
8. Prepare a detailed skilled development plan to transform the tax administration workforce to the new state, noting that every employee requires ongoing skilling and reskilling in the increasingly swiftly changing digital environment.
9. Prepare a strategy to develop an effective digital learning culture, incorporating the key elements identified in section 5.4.
10. Prepare an associated delivery strategy that minimises costs and maximises partnership for an increasingly cost-constrained environment.

The digital infrastructure and standards to support data-driven delivery of tax administration are complex, technical and increasingly international. Yet the double pressure of technology change and budget reduction means that getting the human resources strategy right is critical. This is even more challenging given an ageing workforce in many jurisdictions. However, counter-intuitively, the surveys and reports suggest that tax administrations believe that existing approaches to managing and developing human capital to deliver digital tax administration are broadly sufficient and appropriate. The wider analysis does not support this view. The recommendations provide a clear high-level roadmap, based on the extensive cross-disciplinary literature, to support the transformation of the tax administration workforce for effective digital delivery.

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